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## Nebraska Earth Systems Education Network Newsletter Spring 2008

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## National Council for Accreditation Of Teacher Education

by Cindy Larson-Miller



Whether on the news or in the teachers' lounge, you will no doubt hear mention of the No Child Left Behind Act (NCLB) and the effect that the legislation is having on schools and science curricula across the country. One piece that we are all concerned with is the idea of a "highly qualified teacher." What does this mean to teachers, school districts, and higher education institutions? How can NESEN support NCLB while we strive to promote and enhance K-12 Earth science education?

**Highly Qualified Teachers:** To be deemed highly qualified, teachers must have: 1) a bachelor's degree, 2) full state certification or licensure, and 3) prove that they know each subject they teach.

**State Demand:** NCLB requires states to 1) measure the extent to which all students have highly qualified teachers, particularly minority and disadvantaged students, 2) adopt goals and plans

to ensure all teachers are highly qualified and, 3) publicly report plans and progress in meeting teacher quality goals.

**Demonstration of Competency:** Teachers (in middle and high school) must prove that they know the subject they teach with: 1) a major in the subject they teach, 2) credits equivalent to a major in the subject, 3) passage of a state-developed test, 4) HOUSSE (for current teachers only, see below), 5) an advanced certification from the state, or 6) a graduate degree.

**High, Objective, Uniform State Standard of Evaluation (HOUSSE):** NCLB allows states to develop an additional way for current teachers to demonstrate subject-matter competency and meet highly qualified teacher requirements. Proof may consist of a combination of teaching experience, professional development, and knowledge in the subject garnered over time in the profession.

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## National Council for Accreditation Of Teacher Education by Cindy Larson-Miller

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Here at NESEN, we want to know what teachers as scholars need to achieve this “highly qualified” status. We asked all fifty states, by way of their National Council for Accreditation of Teacher Education (NCATE) representative, the following questions:

- What professional development in terms of institutional/graduate credits are teachers in your state required to fulfill for continued appointment or advancement?
- Would it be preferable for your teachers to have a Masters in Education or in a content area?

Surveys came back from thirty-two of the fifty states. The responses were as diverse as the states from which they came. However, two important statements are common to all the responses. First, teachers are required to complete professional development hours in order to renew their certification and advance on the district pay scale. The number of required hours varies from 3-12 semester credit hours to completion of an advanced degree.

Teachers are able to complete the hours in multiple ways that are specific to the school district. However, all the responding states will accept semester hours from an accredited institution. Additionally, when there is a preference in the state, they want teachers to have a Masters degree in their content area.

In response to this need for teachers to have content-rich professional development opportunities, we are developing a program of “Science in Action” courses. Science in Action courses are online courses that integrate the application of content and pedagogy in the biological, physical, and earth sciences. These courses are designed to meet the needs of K-12 educators who want to improve their content knowledge and ability to teach science. For more information about these courses contact Cindy Larson-Miller at [clarson@unlserve.unl.edu](mailto:clarson@unlserve.unl.edu).

### Source:

U.S. Department of Education  
<http://www.ed.gov/nclb/methods/teachers/hqtflexibility.html>

## Teacher Spotlight: Joan Lahm

by Joan Lahm & Lindsey Mohlman

Joan Lahm teaches three different classes: eighth grade Earth Science, ninth grade Physical Science and Science in the Community at Scotus Central Catholic (Columbus, NE). Mrs. Lahm has been teaching at Scotus for 13 years where she coaches junior high volleyball, co-sponsors the Green Club, and sponsors both high school Student Council and No Limits Group.

**Q:** What first drew you to science and/or becoming a teacher?

**A:** "When I first enrolled at the University of Nebraska-Lincoln, I was a business administration major with the goal of becoming an accountant. To be honest, I never wanted to be a teacher. In order to stay fit, I took a few Physical Education activity classes, met some wonderful people, and changed my major to PE and coaching. In order to fulfill requirements, I had to take several biological science classes and earned an endorsement in biology education as well. Science and math were always interesting subjects to me, and as a former athlete, I realized I wanted to coach as well. Being an educator is exciting, and I am glad it is the path I eventually pursued."

**Q:** Why are you connected with NESEN?

**A:** "When I was required to teach Earth Science I attended the NATS conferences and was introduced to NESEN and the summer workshops by Dave Gosselin and his staff. I know they have had a profound effect on my knowledge of the subject. The workshops not only provided information, but practical application of the knowledge and student activities."



**Q:** What skills and knowledge do you expect your students to master through your class(es)?

**A:** "If I can teach students to learn and become critical, independent thinkers, I will have been successful. Getting students to understand how science influences our lives daily is another goal I have. Career awareness in science-related occupations has been an objective of mine in the classroom as well."

**Q:** How do you encourage students to learn?

**A:** "I try to make the topic we cover interesting and applicable to the students' lives. Modifying lesson plans to accommodate various student learning styles has been successful. I allow a lot of discussion and interaction between students and myself, and they appreciate being listened to."

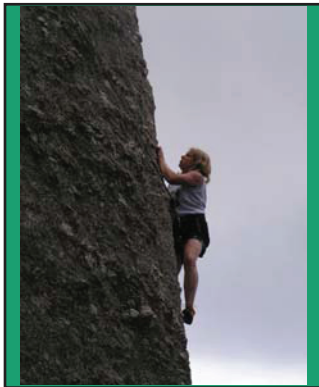
## Teacher Spotlight: Joan Lahm

by Joan Lahm & Lindsey Mohlman

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**Q:** What type of access do your students have to technology? Or how do you incorporate technology into the classroom?

**A:** “My students have access to a computer lab



and I require basic word processing skills. We also use spreadsheets and create graphs with Excel. Unfortunately, with the lack of funds in a private school, we do not have access to a lot of high-tech equipment. It would

be “nice” to have a Smart Board, hand-held computers, probes, clickers, etc., but it isn’t in the budget. I can dream – anyone reading this could sure help us out.”

**Q:** What’s your best memory from elementary school?

**A:** “I am old – can’t think back that far. Oh, now I remember. I won an “award” in sixth grade for being the student who “asked the most questions”. As a teacher, I now realize that was a negative award. It probably meant the student who “asked way too many questions and drove me insane”. I believe Mr. Rotenberg got out of the classroom shortly after I left sixth grade and became an administrator.”

**Q:** Anything else you would like to share?

**A:** “I am fortunate to be a teacher and be married to one as well. My husband Merlin teaches math and coaches at Scotus. We are able to enjoy our careers together as well as spending vacation time as a family. My oldest son, Derek, is now a seventh grader and I look forward to teaching him the next two years. We also have Grant who is in fifth grade and Jessica in fourth. They are all very active and we spend a lot of time running them around.

NESEN workshops allowed me to become more informed about the Earth Sciences and it is my favorite

subject to teach. When I visit with other science teachers, they often complain because they got “stuck”



teaching Earth Science. Even though my degree is in PE/Biology, I enjoy learning about and teaching Earth and Physical Science.”

\*Images provided by Joan Lahm



## Googling Earth and Teaching Geospatial Technologies

by Milda Vaitkus

In the last five years geospatial technologies have become part of our everyday lives. Anyone can find their house or map a destination using Google Earth. GPS devices for navigating in cars or to use with cell phones have become commonplace.

This familiarity with geospatial technologies opens new educational opportunities using tools that are not only free, but also easily accessible and user-friendly. The challenge for educators is to use these tools to augment the instruction of courses they already teach. Luckily, existing resources are available at both the elementary and secondary level. These are a small sample of what is available, but they will, hopefully, provide a place to start.

At the elementary school level, the Interactive Multimedia Adventures for Grade School Education Using Remote Sensing Program developed by NASA (<http://science.hq.nasa.gov/kids/imagers>) acquaints students with the basic concepts of remote sensing and satellite imagery by using an interactive web site with a multimedia adventure game, along with an activity guide containing lesson plans and reproducible hands-on activities.



The interactive web site is meant to engage children, while the supplemental materials enable educators to introduce the concepts through hands-on activities in the classroom. Activities are divided into two levels. It presents science concepts through metaphors and analogies that relate to an urban environment. "The Adventures of Echo the Bat", aimed at grades 5-8, teaches

students the "understanding of light" and the "electromagnetic spectrum" as a foundation for remote sensing. It offers a directed and investigative approach to how land features look from space, what the colors mean in a satellite image, and how to identify habitats using false color.



Google Earth engages students with its easy to use interface and immediate link with familiar places.

Google for educators ([http://www.google.com/educators/p\\_earth.html](http://www.google.com/educators/p_earth.html)) provides teachers with a multitude of resources for using this powerful geospatial tool. Both 'traditional' applications in subjects such as geology are addressed, as well as geospatial applications in history and even literature. Activities are divided by grade level and are frequently updated.

The U.S. Geological Survey (USGS) has developed a wealth of educational resources that focus on using geographic information systems (GIS) to study the earth ([http://education.usgs.gov/docs/education\\_brochure\\_high.pdf](http://education.usgs.gov/docs/education_brochure_high.pdf)). Here you will find information on how to use GIS for studying features such as volcanoes and glaciers; natural phenomena such as earthquakes; biological monitoring of amphibians and birds; and environmental events resulting from climate change.



For more information contact:  
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\*Images provided by Milda Vaikus

\*Google Image provided by [www.google.com](http://www.google.com)

## **UNL PINE RIDGE TEACHER INSTITUTE RECONNECTS EDUCATORS WITH NATURE**

by Scott Cotton

Each subject matter is complimented by in-class rancher hosts who provide the land manager perspective and tie scientific subjects to landscape management in a very personal and real manner. This week-long Teacher's Institute at historic Fort Robinson was developed to help teachers get back in touch with the realities of natural resource management and the people who live on the landscape. With a special feature being that teachers spend a field day with host ranchers, this experience combines research-based lectures, field exercises and teacher camaraderie with an overall goal of sending teachers home with curriculum, tools, experiences and contacts that generate an in-depth understanding of natural resource management which they can present to students in schools.

Inaugurated in 2007, the Pine Ridge Teacher's Institute is a collaborative effort between UNL Extension, the Running Water Ranch Coalition, Northwest Nebraska High Country, the Panhandle Resource and Development Council, Upper Niobrara White Natural Resource District, and Nebraska Game and Parks. This innovative partner group, along with other supporters, reached consensus that K-12 educators in western Nebraska needed educational opportunities in our region.

This life-event for teachers combined history, ecology, geology, animal population ecology, hydrology, and natural sciences for teachers in 2007 that included range site evaluation, learning to use Native American Drums to get students to work as a team and food quality assurance practice utilized by ranchers.

During the 2008 Pine Ridge Teachers Institute (scheduled for June 9-13 at Fort Robinson) teachers will once again work with host ranchers while learning research-based techniques for managing healthy forests, streams, rangelands and wildlife habitats. This year the structure will have lectures in the mornings and outdoor field experiences in the afternoon. On Thursday teachers will spend the day with ranchers across a three county area to learn first hand the challenges ranchers face managing resources and why they do it. One again the Institute will align with the Inter-tribal POW-WOW.

Academic requirements for the Institute require two examinations, two written lesson plans, a white paper and several demonstrations. Some course requirements are finished after the week of class. Educators may participate in the Institute for a fee of \$225 which includes housing for four days, one supper, and four lunches. Teachers may also enroll and complete UNL graduate credits for an additional fee. Teachers who participate share housing in historic soldier barracks and attend class each morning in the Buffalo Soldier Barracks.

Pre-registration of \$50 is required by Monday, May 5. Those interested may contact Scott Cotton, UNL Extension at (308)432-3373 or [scotton2@unl.edu](mailto:scotton2@unl.edu), and more information will be provided.

For more information contact:  
 Scott Cotton, Extension Educator, Unit Leader  
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**Nebraska Earth Systems Education Network**  
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**What is NESEN?**

The Nebraska Earth Systems Education Network (NESEN) is a program within the School of Natural Resources (SNR), Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln. NESEN's goal is to improve linkages between K-12 educators and earth science resources.

For more information about NESEN, contact Dave Gosselin, NESEN director, (402-472-8919) [dgosselin2@unl.edu](mailto:dgosselin2@unl.edu); or Lindsey Mohlman, NESEN project assistant, [lmohlman@unl.edu](mailto:lmohlman@unl.edu).

The NESEN Newsletter is coordinated by Lindsey Mohlman. Please send your earth science related news items and announcements for inclusion in our next issue to [lmohlman@unl.edu](mailto:lmohlman@unl.edu). Deadline for submission of material for the Summer 2008 issue is June 9, 2008. Digital copies are preferred however, hardcopy can be mailed or faxed to:

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